AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of reading a magnetic tag having at least one magnetic element, comprising:

interrogating the tag with a scanning magnetic field;

determining transition data associated with changes in the magnetisation state of the at least one magnetic element;

associating the transition data with one or more respective magnetic elements; and

for each magnetic element, determining the element direction which corresponds to the transition data for that magnetic element.

2. (Currently Amended) A method according to claim 1, wherein the step of determining the magnetic element direction comprises selecting the direction which minimises the scatter of transition field vectors resolved along the direction of the magnetic element.

3. (Currently Amended) A method according to claim 1, including grouping the transition data by the type of magnetic element transition.

4. (Currently Amended) A method according to claim 3, comprising grouping first and second types of magnetic element transition.

5. (Currently Amended) A method according to claim 4, wherein the first type of magnetic element transition comprises a forward transition and the second type of magnetic element transition comprises a reverse transition.

6. (Currently Amended) A method according to claim 4, wherein a signal defining a transition is received by one or more receiver coils, including determining the type of transition in accordance with the polarity of the rate of change of the field vector in the direction of the magnetic element.

7. (Previously Amended) A method according to claim 4, including determining information relating to the switching fields for each of the first and second types of transition.

8. (Currently Amended) A method according to claim 7, comprising determining magnetic element characteristics from said switching field information relating to transition data associated with ana magnetic element.

9. (Currently Amended) A method according to claim 8, further comprising calculating the coercivity of the magnetic element as substantially half the difference between first and second switching fields.

10. (Currently Amended) A method according to claim 8, further comprising calculating the bias field on the magnetic element as substantially the sum of first and second switching fields.

11. (Previously Amended) A method according to claim 9, wherein the first switching field comprises the mean value of the switching fields for the first type of

transition and the second switching field comprises the mean value of the switching fields for the second type of transition.

12. (Currently Amended) A method according to claim 1, including associating the transition data with one or more respective magnetic elements using a receiver vector whose components represent the amplitudes of the signals in one or more receive coils.

13. (Previously Amended) A method according to claim 1, comprising scanning the tag using a rotating magnetic field.

14. (Currently Amended) A method according to claim 13, in which the tag comprises a plurality of magnetic elements, further comprising associating transition data with respective magnetic elements in accordance with the order in which the magnetic elements transition in response to the rotating field.

15. (Currently Amended) A method according to claim 1, comprising determining the coercivity, the local magnetic field bias resolved in the direction of the or each magnetic element and the orientation of the or each magnetic element relative to a known interrogation field reference frame.

16. (Currently Amended) A method according to claim 1, further comprising determining the amplitude response of the or each magnetic element to the applied magnetic field.

17. (Currently Amended) A method of distinguishing between a plurality of magnetic elements, comprising the steps of:

applying a scanning magnetic field to the magnetic elements;

determining the direction of each of the <u>magnetic</u> elements;

for each of the <u>magnetic</u> elements, determining the components of the field in the direction of the <u>magnetic</u> element at which the <u>magnetic</u> element switches magnetisation states; and

from said components, determining, for each of the <u>magnetic</u> elements, respective characteristics of the <u>magnetic</u> element.

18. (Currently Amended) A method according to claim 17, comprising determining first and second switching components as the components when the rate of change of the field along the direction of the <u>magnetic</u> element is positive and negative respectively.

19. (Currently Amended) A method according to claim 17 wherein the respective characteristics comprise the coercivities of the <u>magnetic</u> elements.

20. (Currently Amended) A method according to claim 17, comprising storing data by reference to the respective characteristics of the <u>magnetic</u> elements.

21. (Currently Amended) A method according to claim 20, wherein data is storable by reference to any one or more of orientation of the <u>magnetic</u> elements, coercivity, bias field along the <u>magnetic</u> element and amplitude response.

22. (Previously Amended) A method according to claim 20, wherein data is storable by reference to parameters relating to any one or more of rate of change of applied field, perpendicular field, response time, characteristic response shape and the statistical distribution of the parameters.

23. (Currently Amended) A method of determining, for a magnetic element, any one or more of a plurality of characteristics comprising the coercivity of the magnetic element, the local magnetic field bias resolved in the direction of the magnetic element and the orientation of the magnetic element, comprising ~~the steps of~~:

applying a varying magnetic field to the magnetic element;

determining the direction of the magnetic element;

determining the components of the field in the direction of the magnetic element at which the magnetic element switches magnetisation states; and

from said components, determining the one or more characteristics of the magnetic element.

24. (Currently Amended) A computer program, which when run on a computer, is configured to carry out ~~the steps of claim 1.~~a method of reading a magnetic tag having at least one magnetic element comprising:

interrogating the tag with a scanning magnetic field;

determining transition data associated with changes in the magnetisation state of the at least one magnetic element;

associating the transition data with one or more respective elements; and

for each element, determining the element direction which corresponds to the transition data for that element.

25. (Currently Amended) A magnetic tag reader for reading a magnetic tag having at least one magnetic element, comprising:

means for interrogating the tag with a scanning magnetic field;

means for determining transition data associated with changes in the magnetisation

state of the at least one magnetic element;

means for associating the transition data with one or more respective <u>magnetic</u>

elements; and

means for determining, for each <u>magnetic</u> element , the <u>magnetic</u> element

direction which corresponds to the transition data for that <u>magnetic</u> element.

26. (Original) A tag reader according to claim 25, wherein the scanning field

comprises a rotating magnetic field.

27. (Currently Amended) A tag reader according to claim 25, further comprising

means for selecting the <u>magnetic</u> element direction which minimises the scatter of

transition point field vectors resolved along the direction of the <u>magnetic</u> element.

28. (Currently Amended) A tag reader according to claim 25, wherein the

transition data includes data defining first and second switching fields at which at an <u>a</u>

<u>magnetic</u> element undergoes first and second transitions.